

THAT WHICH IS CLAIMED IS:

1. A method of processing eggs having an identified characteristic, comprising:
extracting material from each of a plurality of eggs;

5 assaying the material extracted from each egg to identify eggs having a characteristic; and
 selectively processing eggs identified as having the characteristic.

2. The method of Claim 1, further comprising:
identifying live eggs among the plurality of eggs prior to extracting material; and
5 extracting material from eggs identified as live eggs.

3. The method of Claim 2, wherein identifying live eggs comprises candling the eggs.

4. The method of Claim 2, wherein identifying live eggs comprises:

 illuminating each egg with light from a light source, wherein the light includes light in both visible
5 and infrared wavelengths;

 receiving light passing through each egg at a detector positioned adjacent each egg;

 determining intensity of the received light at selected ones of the visible and infrared wavelengths for
10 each egg;

 generating a spectrum for each egg that represents light intensity at the plurality of visible and infrared wavelengths; and

 comparing the generated spectrum for each egg
15 with a spectrum associated with a live egg to identify

live eggs.

5 5. The method of Claim 4, wherein the step of illuminating each egg with light comprises illuminating each egg with light at wavelengths of between about three hundred nanometers and about eleven hundred nanometers (300 nm - 1,100 nm).

 6. The method of Claim 2, wherein identifying live eggs comprises:
 measuring the opacities of the plurality of eggs;
5 measuring the temperatures of the plurality of eggs; and
 identifying live eggs using the measured opacities and temperatures.

 7. The method of Claim 1, wherein extracting material from the eggs comprises extracting allantoic fluid, amnion, yolk, shell, albumen, tissue, membrane and/or blood from the eggs.

 8. The method of Claim 7, wherein extracting material from the eggs comprises:
 positioning each of the eggs in a generally horizontal orientation whereby an allantois of each egg
5 is caused to pool and enlarge an allantoic sac under an upper portion of each egg shell;
 inserting a probe into each egg through the shell of the egg and directly into the enlarged allantoic sac; and
10 withdrawing a sample of allantoic fluid from the allantois of each egg via each probe.

 9. The method of Claim 8, wherein positioning each of the eggs in a generally horizontal orientation

5 comprises positioning each of the eggs such that a long axis of each egg is oriented at an angle between about 10 degrees and about 180 degrees from vertical, wherein zero degrees vertical is defined by a large end of an egg in a vertically upward position.

10. The method of Claim 8, further comprising:
repositioning each of the eggs from a generally horizontal orientation to a generally vertical orientation after allantoic fluid is withdrawn therefrom;
5 and

moving the generally vertically oriented eggs to another location.

11. The method of Claim 8, wherein
assaying the material extracted from each egg to identify one or more characteristics of each egg comprises
detecting a presence of an estrogenic compound in the
5 extracted allantoic fluid.

12. The method of Claim 11, wherein
detecting a presence of an estrogenic compound comprises:
dispensing allantoic fluid extracted from the
eggs into respective receptacles;

5 dispensing a biosensor into the receptacles,
wherein the biosensor is configured to chemically react with an estrogenic compound in the allantoic fluid and change a color of the allantoic fluid; and

10 detecting a color change of the allantoic fluid within the receptacles.

13. The method of Claim 11, wherein
detecting a presence of an estrogenic compound comprises:
dispensing allantoic fluid extracted from the
eggs into respective receptacles, wherein each receptacle
5 contains a biosensor configured to chemically react with

an estrogenic compound in the allantoic fluid and change a color of the allantoic fluid; and

detecting a color change of the allantoic fluid within the receptacles.

14. The method of Claim 1, wherein assaying the material extracted from each egg to identify one or more characteristics of each egg comprises identifying gender of each egg, and wherein selectively processing the live eggs comprises selectively injecting a vaccine into the eggs of gender.

15. The method of Claim 13, further comprising injecting a first vaccine into eggs identified as male, and injecting a second vaccine into eggs identified as female.

16. The method of Claim 1, wherein assaying the material extracted from each egg to identify one or more characteristics of each egg comprises identifying gender of each egg, and wherein processing the live eggs comprises removing eggs identified as having the same gender.

17. The method of Claim 1, wherein assaying the material extracted from each egg to identify one or more characteristics of each egg comprises identifying one or more pathogens within each egg, and wherein processing the live eggs comprises removing eggs identified as having one or more pathogens.

18. The method of Claim 1, wherein assaying the material extracted from each egg to identify one or more characteristics of each egg comprises performing genetic analysis on each egg.

19. A method of processing eggs based on gender, comprising:

identifying live eggs among a plurality of eggs;

5 extracting material from the eggs identified as live eggs;

assaying the material extracted from each live egg to identify gender of each live egg; and

10 selectively injecting a vaccine into the live eggs according to gender.

20. The method of Claim 19, further comprising sorting the live eggs according to gender prior to selectively injecting a vaccine into the live eggs.

21. The method of Claim 19, further comprising sorting the live eggs according to gender after selectively injecting a vaccine into the live eggs.

22. The method of Claim 19, wherein identifying live eggs comprises candling the eggs.

23. The method of Claim 19, wherein identifying live eggs comprises:

5 illuminating each egg with light from a light source, wherein the light includes light in both visible and infrared wavelengths;

receiving light passing through each egg at a detector positioned adjacent each egg;

10 determining intensity of the received light at selected ones of the visible and infrared wavelengths for each egg;

generating a spectrum for each egg that represents light intensity at the plurality of visible and infrared wavelengths; and

comparing the generated spectrum for each egg

15 with a spectrum associated with a live egg to identify
live eggs.

24. The method of Claim 19, wherein the step
of illuminating each egg with light comprises
illuminating each egg with light at wavelengths of
between about three hundred nanometers and about eleven
5 hundred nanometers (300 nm - 1,100 nm).

25. The method of Claim 19, wherein
identifying live eggs comprises:

measuring the opacities of the plurality of
eggs;

5 measuring the temperatures of the plurality of
eggs; and

identifying live eggs using the measured
opacities and temperatures.

26. The method of Claim 19, wherein extracting
material from the eggs comprises extracting allantoic
fluid, amnion, yolk, shell, albumen, tissue, membrane
and/or blood from the eggs.

27. The method of Claim 26, wherein assaying
the material extracted from each live egg to identify
gender of each live egg comprises detecting the presence
of an estrogenic compound in the allantoic fluid
5 extracted from each live egg.

28. The method of Claim 26, wherein
extracting material from the eggs comprises:

positioning each of the live eggs in a
generally horizontal orientation whereby an allantois of
each egg is caused to pool and enlarge an allantoic sac
5 under an upper portion of each egg shell;

inserting a probe into each egg through the

shell of the egg and directly into the enlarged allantoic sac; and

10 withdrawing a sample of allantoic fluid from the allantois of each egg via each probe.

29. The method of Claim 28, wherein
positioning each of the live eggs in a generally
horizontal orientation comprises positioning each of the
live eggs such that a long axis of each egg is oriented
5 at an angle between about 10 degrees and about 180
degrees from vertical, wherein zero degrees vertical is
defined by a large end of an egg in a vertically upward
position.

30. The method of Claim 28, further
comprising:

 repositioning each of the live eggs from a
generally horizontal orientation to a generally vertical
5 orientation after allantoic fluid is withdrawn therefrom;
and

 moving the generally vertically oriented live
eggs to another location.

31. The method of Claim 27, wherein
detecting a presence of estrogen compounds comprises:
 dispensing allantoic fluid extracted from the
live eggs into respective receptacles;

5 dispensing a biosensor into the receptacles,
wherein the biosensor is configured to chemically react
with an estrogenic compound in the allantoic fluid and
change a color of the allantoic fluid; and

10 detecting a color change of the allantoic fluid
within the receptacles.

32. The method of Claim 27, wherein
detecting a presence of estrogen compounds comprises:

dispensing allantoic fluid extracted from the
eggs into respective receptacles, wherein each receptacle
contains a biosensor configured to chemically react with
an estrogenic compound in the allantoic fluid and change
a color of the allantoic fluid; and

detecting a color change of the allantoic fluid
within the receptacles.

33. The method of Claim 19, wherein
detecting a presence of estrogen compounds comprises:

dispensing allantoic fluid extracted from the
eggs into respective receptacles, wherein each receptacle
contains a biosensor configured to chemically react with
an estrogenic compound in the allantoic fluid and produce
a detectable signal; and

detecting a signal produced within one or more
of the receptacles.

34. A method of processing eggs according to
gender, comprising:

identifying live eggs among a plurality of
eggs;

extracting allantoic fluid from the eggs
identified as live eggs, comprising:

positioning each of the live eggs in a
generally horizontal orientation whereby an
allantois of each egg is caused to pool and
enlarge an allantoic sac under an upper portion
of each egg shell;

inserting a probe into each egg through
the shell of the egg and directly into the
enlarged allantoic sac; and

withdrawing a sample of allantoic fluid
from the allantois of each egg via each probe;
detecting a presence of an estrogenic compound
in the allantoic fluid extracted from each live egg to

identify a gender of each live egg, comprising:

20 dispensing allantoic fluid extracted from
the live eggs into respective receptacles;
 dispensing a biosensor into the
receptacles, wherein the biosensor is
configured to chemically react with an
25 estrogenic compound in the allantoic fluid and
change a color of the allantoic fluid; and
 detecting a color change of the allantoic
fluid within the receptacles; and
 selectively injecting a vaccine into the live
30 eggs according to gender.

35. The method of Claim 34, further comprising
sorting the live eggs according to gender.

36. The method of Claim 34, wherein
identifying live eggs comprises candling each egg.

37. The method of Claim 34, wherein
selectively injecting a vaccine into the live eggs
according to gender comprises injecting a first vaccine
into live eggs identified as male, and injecting a second
5 vaccine into live eggs identified as female.

38. The method of Claim 34, wherein
selectively injecting a vaccine into the live eggs
according to gender comprises injecting a vaccine into
live eggs identified as having the same gender.

39. An apparatus for extracting material from
a plurality of eggs, comprising:

 a table comprising a plurality of cradles
arranged in an array, wherein each cradle is configured
5 to receive an egg in a generally vertical orientation and
to cause the egg to move to a generally horizontal

orientation;

an egg transfer device operably associated with the table, wherein the egg transfer device is configured to simultaneously lift a plurality of generally vertically oriented eggs from an egg flat and place the plurality of eggs within respective cradles, and wherein the egg transfer device is configured to simultaneously lift and remove the plurality of eggs from the plurality of cradles; and

a plurality of sample heads operably associated with the table, each of which is configured to extract material from a respective egg within a respective cradle and to deposit the extracted material within a respective sample receptacle in a sample template.

40. The apparatus of Claim 39, further comprising a plurality of orientation members, wherein each orientation member is operably associated with a respective cradle, and wherein each orientation member is configured to urge an egg within a respective cradle from a generally horizontal orientation to a generally vertical orientation.

41. The apparatus of Claim 39, further comprising a classifier that is configured to identify live eggs among a plurality of eggs.

42. The apparatus of Claim 41, wherein the classifier comprises an egg candling device.

43. The apparatus of Claim 39, further comprising a sanitizer that is configured to apply sanitizing fluid to each sample head after each sample head has deposited material extracted from an egg into a respective sample receptacle.

44. The apparatus of Claim 39, further comprising a processor that is configured to create and store an association between material deposited within a sample receptacle with an egg from which the material was extracted from.

45. The apparatus of Claim 41, wherein the egg transfer device is operably associated with the classifier and is configured to simultaneously lift only eggs identified as live eggs from an egg flat.

46. The apparatus of Claim 41, wherein the sample heads are operably associated with the classifier and are configured to only extract material from eggs identified as live eggs.

47. The apparatus of Claim 39, wherein the egg transfer device comprises:

a frame;

an array of manifold blocks movably supported by the frame, wherein each manifold block comprises an end portion and an internal passageway that terminates at a nozzle extending from the end portion, and wherein the array is expandable and contractible such that eggs can be lifted from and placed within egg flats of different sizes and/or array configurations; and

a plurality of flexible cups, each secured to a respective manifold block nozzle and each in fluid communication with an internal passageway of a respective manifold block, wherein each flexible cup is configured to engage and retain an egg in seated relation therewith when vacuum is provided within the flexible cup via a respective internal passageway and wherein each flexible cup is configured to release a respective egg when vacuum within the respective internal passageway is destroyed.

48. The apparatus of Claim 39, wherein each sample head comprises:

an elongated housing having opposite first and second ends and an elongated passageway extending therebetween; and

an elongated needle disposed within the elongated passageway and movable between a retracted position and first and second extended positions, wherein the needle comprises a tip, wherein the tip of the needle is contained within the passageway when the needle is in the retracted position, wherein the tip of the needle extends from the housing first end a first distance when the needle is in the first extended position, wherein the tip of the needle extends from the housing first end a second distance greater than the first distance when the needle is in the second extended position, wherein the needle is configured to extract material from an egg when in the first extended position, and wherein the needle is configured to dispense material extracted from an egg into a sample receptacle when in the second extended position.

49. The apparatus of Claim 39, further comprising an alignment member associated with each sample head that is configured to adjust a position of an egg within a respective cradle.

50. The apparatus of Claim 39, further comprising:

an egg flat transport system positioned adjacent to the table that transports flats of eggs to the egg transfer device; and

an egg flat transport system positioned adjacent to the table that transports flats of eggs from the egg transfer device.

51. The apparatus of Claim 39, further comprising a sample template transport system positioned adjacent to the table and operably associated with the plurality of sample heads that transports sample templates to and from the plurality of sample heads.

52. The apparatus of Claim 39, further comprising an egg cradle transport system operably associated with the table that moves the array of cradles relative to the plurality of sample heads.

53. The apparatus of Claim 48, further comprising a locking plate operably associated with the plurality of sample heads, wherein the locking plate is configured to releasably restrain each elongated housing from movement when the needle is extended from the housing first end to the first extended position.

54. An apparatus for extracting material from a plurality of eggs, comprising:

a table comprising a plurality of cradles arranged in an array, wherein each cradle is configured to receive an egg in a generally vertical orientation and to cause the egg to move to a generally horizontal orientation;

an egg transfer device operably associated with the table, comprising:

a frame;

an array of manifold blocks movably supported by the frame, wherein each manifold block comprises an end portion and an internal passageway that terminates at a nozzle extending from the end portion, and wherein the array is expandable and contractible such that eggs can be lifted from and placed within egg flats of different sizes and/or array

configurations; and

20 a plurality of flexible cups, each secured
to a respective manifold block nozzle and each
in fluid communication with an internal
passageway of a respective manifold block,
wherein each flexible cup is configured to
25 engage and retain an egg in seated relation
therewith when vacuum is provided within the
flexible cup via a respective internal
passageway and wherein each flexible cup is
configured to release a respective egg when
30 vacuum within the respective internal
passageway is destroyed;

wherein the egg transfer device is
configured to simultaneously lift a plurality
of generally vertically oriented eggs from an
egg flat and place the plurality of eggs within
35 respective cradles, and wherein the egg
transfer device is configured to simultaneously
lift and remove the plurality of eggs from the
plurality of cradles; and

40 a plurality of sample heads operably associated
with the table, wherein each sample head is configured to
extract material from a respective egg within a
respective cradle and to deposit the extracted material
within a respective sample receptacle in a sample
45 template, wherein each sample head comprises:

an elongated housing having opposite first
and second ends and an elongated passageway
extending therebetween; and

50 an elongated needle disposed within the
elongated passageway and movable between a
retracted position and first and second
extended positions, wherein the needle
comprises a tip, wherein the tip of the needle
is contained within the passageway when the

55 needle is in the retracted position, wherein
the tip of the needle extends from the housing
first end a first distance when the needle is
in the first extended position, wherein the tip
of the needle extends from the housing first
60 end a second distance greater than the first
distance when the needle is in the second
extended position, wherein the needle is
configured to extract material from an egg when
in the first extended position, and wherein the
65 needle is configured to dispense material
extracted from an egg into a sample receptacle
when in the second extended position.

55. The apparatus of Claim 54, further
comprising a plurality of orientation members, wherein
each orientation member is operably associated with a
respective cradle, and wherein each orientation member is
5 configured to urge an egg within a respective cradle from
a generally horizontal orientation to a generally
vertical orientation.

56. The apparatus of Claim 54, further
comprising a classifier that is configured to identify
live eggs among a plurality of eggs.

57. The apparatus of Claim 56, wherein the
classifier comprises an egg candling device.

58. The apparatus of Claim 54, further
comprising a sanitizer that is configured to apply
sanitizing fluid to each sample head after each sample
head has deposited material extracted from an egg into a
5 respective sample receptacle.

59. The apparatus of Claim 54, further

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comprising a processor that is configured to create and store an association between material deposited within a sample receptacle with an egg from which the material was extracted from.

60. The apparatus of Claim 56, wherein the egg transfer device is operably associated with the classifier and is configured to simultaneously lift only eggs identified as live eggs from an egg flat.

61. The apparatus of Claim 56, wherein the sample heads are operably associated with the classifier and are configured to only extract material from eggs identified as live eggs.

62. The apparatus of Claim 54, further comprising an egg flat transport system positioned adjacent to the table that transports flats of eggs to the egg transfer device.

63. The apparatus of Claim 54, further comprising an egg flat transport system positioned adjacent to the table that transports flats of eggs from the egg transfer device.

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64. The apparatus of Claim 54, further comprising a sample template transport system positioned adjacent to the table and operably associated with the plurality of sample heads that transports sample templates to and from the plurality of sample heads.

65. The apparatus of Claim 54, further comprising an egg cradle transport system operably associated with the table that moves the array of cradles relative to the plurality of sample heads.

66. The apparatus of Claim 54, further comprising a locking plate operably associated with the plurality of sample heads, wherein the locking plate is configured to releasably restrain each elongated housing from movement when the needle is extended from the housing first end to the first extended position.

67. The apparatus of Claim 54, wherein the plurality of sample heads comprises first and second sets of sample heads, wherein sample heads in the first set are configured to extract material from eggs within a plurality of cradles, and wherein sample heads in the second set are configured to deposit previously extracted material within respective sample receptacles.

68. An apparatus for extracting material from an egg, comprising:

an elongated housing having opposite first and second ends and an elongated passageway extending therebetween, wherein the elongated housing first end is configured to contact a portion of a shell of an egg; and

an elongated needle movably disposed within the elongated passageway and movable between a retracted position and first and second extended positions, wherein the needle comprises a fluid passageway and a tip, wherein the tip of the needle is contained within the passageway when the needle is in the retracted position, wherein the tip of the needle extends from the housing first end a first distance when the needle is in the first extended position, and wherein the tip of the needle extends from the housing first end a second distance greater than the first distance when the needle is in the second extended position;

wherein the elongated needle is configured to punch through the shell of an egg when the elongated housing first end is in contact with the egg shell and

the elongated needle is moved to the first extended position, wherein the elongated needle is configured to extract material from the egg into the fluid passageway when in the first extended position, and wherein the needle is configured to dispense extracted material in the fluid passageway into a sample receptacle when in the second extended position.

69. The apparatus of Claim 68, further comprising a biasing member disposed within the elongated housing, wherein the biasing member exerts a force on the elongated needle to urge the elongated needle from the second extended position to the first extended position.

70. The apparatus of Claim 69, further comprising an actuator that is configured to move the elongated needle between the retracted position and first and second extended positions, wherein the actuator is configured to exert first and second actuation force on the elongated needle, wherein the first actuation force is sufficient to move the elongated needle to the first extended position, and wherein the second actuation force is sufficient to move the elongated needle to the second extended position.

71. The apparatus of Claim 70, wherein the actuator comprises an air actuator that is in fluid communication with a compressed air system.

72. The apparatus of Claim 68, wherein the elongated needle tip comprises a blunt configuration.

73. The apparatus of Claim 68, wherein the elongated needle tip comprises a beveled configuration.

74. An apparatus for assaying material

5 extracted from a plurality of eggs to identify ones of
the eggs having a characteristic, wherein material
extracted from each egg is contained within a respective
sample receptacle of a template, wherein the apparatus
comprises:

10 a reagent dispenser that is configured to
dispense a reagent into each of the receptacles of a
template, wherein the reagent is configured to chemically
react with the egg material in each receptacle to produce
an indication of a characteristic of a respective egg;
and

15 a detector that is configured to detect an
indication of an egg characteristic in each of the
receptacles.

75. The apparatus of Claim 74, wherein the
detector comprises a CCD camera.

76. The apparatus of Claim 74, further
comprising a sterilizer that is configured to destroy the
reagent.

77. The apparatus of Claim 76, wherein the
sterilizer comprises a sterilizing agent dispenser that
is configured to dispense a sterilizing agent into each
of the receptacles to destroy the reagent.

78. The apparatus of Claim 76, wherein the
sterilizer comprises a heat generating source.

79. The apparatus of Claim 76, wherein the
sterilizer comprises a radiation generating source.

80. The apparatus of Claim 74, wherein the
reagent dispenser comprises a biosensor dispenser.

81. An apparatus for assaying material extracted from a plurality of eggs to identify ones of the eggs having a characteristic, wherein material extracted from each egg is contained within a respective sample receptacle of a template, wherein the apparatus comprises:

an environmentally-controlled chamber that maintains temperature and/or humidity within one or more respective predetermined ranges;

a conveyor system that is configured to convey a plurality of sample receptacle templates through the chamber;

a biosensor dispenser disposed within the chamber and operably associated with the conveyor system, wherein the biosensor dispenser is configured to dispense a biosensor into each of the receptacles of a template conveyed via the conveyor system;

a color substrate dispenser disposed within the chamber and operably associated with the conveyor system, wherein the color substrate dispenser is configured to dispense a color substrate into each of the receptacles of a template conveyed via the conveyor system, wherein the biosensor and color substrate are configured to chemically react with egg material in each respective receptacle so as to produce an indication of a presence of a characteristic of a respective egg; and

a detector operably associated with the conveyor system that is configured to scan each sample receptacle in a template conveyed via the conveyor system and to detect an indication of the presence of a characteristic.

82. The apparatus of Claim 81, wherein the detector comprises a CCD camera that is configured to detect a change in color of material in each sample receptacle of a template.

83. The apparatus of Claim 81, further comprising a sterilizer that is configured to destroy the biosensor.

84. The apparatus of Claim 83, wherein the sterilizer comprises a sterilizing agent dispenser that is configured to dispense a sterilizing agent into each of the receptacles to destroy the biosensor.

85. The apparatus of Claim 83, wherein the sterilizer comprises a heat generating source.

86. The apparatus of Claim 83, wherein the sterilizer comprises a radiation generating source.

87. The apparatus of Claim 81, wherein the biosensor dispenser comprises a yeast dispenser.

88. An apparatus for assaying material extracted from a plurality of eggs to identify gender of the eggs, wherein material extracted from each egg is contained within a respective sample receptacle of a template, wherein the apparatus comprises:

an environmentally-controlled chamber that maintains temperature and/or humidity within one or more respective predetermined ranges;

a conveyor system that is configured to convey a plurality of sample receptacle templates through the chamber;

a yeast dispenser disposed within the chamber and operably associated with the conveyor system, wherein the yeast dispenser is configured to dispense a yeast into each of the receptacles of a template conveyed via the conveyor system;

a color substrate dispenser disposed within the chamber and operably associated with the conveyor system,

wherein the color substrate dispenser is configured to
 dispense a color substrate into each of the receptacles
 of a template conveyed via the conveyor system, wherein
 the yeast and color substrate are configured to
 chemically react with egg material in each respective
 receptacle so as to produce a color that indicates gender
 of a respective egg; and

a CCD camera operably associated with the
 conveyor system that is configured to scan each sample
 receptacle in a template conveyed via the conveyor system
 and to detect a color.

89. The apparatus of Claim 88, further
 comprising a sterilizer that is configured to destroy the
 yeast.

90. The apparatus of Claim 89, wherein the
 sterilizer comprises a sterilizing agent dispenser that
 is configured to dispense a sterilizing agent into each
 of the receptacles to destroy the yeast.

91. An apparatus for selectively processing
 eggs, comprising:

a conveyor configured to convey egg carriers;
 a plurality of injection delivery devices
 operably associated with the conveyor, wherein the
 injection delivery devices are configured to inject a
 substance into eggs identified among a plurality of eggs
 in an egg carrier conveyed by the conveyor as having a
 characteristic; and

an egg removal device operably associated with
 the conveyor, wherein the egg removal device is
 configured to remove eggs identified as having a
 characteristic from an egg carrier conveyed by the
 conveyor.

92. The apparatus of Claim 91, wherein the egg removal device comprises:

an array of manifold blocks, wherein each manifold block comprises an end portion and an internal passageway that terminates at a nozzle extending from the end portion; and

a plurality of flexible cups, each secured to a respective manifold block nozzle and each in fluid communication with an internal passageway of a respective manifold block, wherein each flexible cup is configured to engage and retain an egg in seated relation therewith when vacuum is provided within the flexible cup via a respective internal passageway and wherein each flexible cup is configured to release a respective egg when vacuum within the respective internal passageway is destroyed.

93. The apparatus of Claim 91, wherein the characteristic is gender, and wherein each injection delivery device is configured to inject a substance into eggs identified as having the same gender.

94. The apparatus of Claim 91, wherein the characteristic is gender, and wherein the egg removal device is configured to remove eggs from an egg carrier identified as having the same gender.

95. An apparatus for selectively processing eggs, comprising:

a conveyor configured to convey egg carriers;
a first set of injection delivery devices operably associated with the conveyor, wherein the injection delivery devices in the first set are configured to inject a substance into eggs identified as having a first gender in an egg carrier conveyed by the conveyor;

a second set of injection delivery devices

operably associated with the conveyor and adjacent the first set of injection delivery devices, wherein the injection delivery devices in the second set are configured to inject a substance into eggs identified as having a second gender in the egg carrier; and

an egg removal device operably associated with the conveyor, wherein the egg removal device is configured to remove eggs identified as having a first gender from the egg carrier into a first receptacle, and to remove eggs identified as having a second gender from the egg carrier into a second receptacle.

96. The apparatus of Claim 95, wherein the egg removal device comprises:

an array of manifold blocks, wherein each manifold block comprises an end portion and an internal passageway that terminates at a nozzle extending from the end portion; and

a plurality of flexible cups, each secured to a respective manifold block nozzle and each in fluid communication with an internal passageway of a respective manifold block, wherein each flexible cup is configured to engage and retain an egg in seated relation therewith when vacuum is provided within the flexible cup via a respective internal passageway and wherein each flexible cup is configured to release a respective egg when vacuum within the respective internal passageway is destroyed.

97. An apparatus for selectively processing eggs, comprising:

a conveyor configured to convey egg carriers containing a plurality of eggs;

an egg removal device operably associated with the conveyor that segregates male eggs from female eggs;

a first set of injection delivery devices that are configured to inject a substance into male eggs; and

10 a second set of injection delivery devices that
are configured to inject a substance into female eggs.

98. The apparatus of Claim 97, wherein the egg
removal device comprises:

5 an array of manifold blocks, wherein each
manifold block comprises an end portion and an internal
passageway that terminates at a nozzle extending from the
end portion; and

10 a plurality of flexible cups, each secured to a
respective manifold block nozzle and each in fluid
communication with an internal passageway of a respective
manifold block, wherein each flexible cup is configured
to engage and retain an egg in seated relation therewith
when vacuum is provided within the flexible cup via a
respective internal passageway and wherein each flexible
cup is configured to release a respective egg when vacuum
15 within the respective internal passageway is destroyed.

99. An egg processing system, comprising:

an apparatus for extracting material from a
plurality of eggs;

5 an apparatus for assaying material extracted
from the eggs to identify eggs having a characteristic;
and

an apparatus for selectively processing eggs
identified as having the characteristic.

100. The system of Claim 99, wherein the
apparatus for extracting material from a plurality of
eggs comprises:

5 a table comprising a plurality of cradles
arranged in an array, wherein each cradle is configured
to receive an egg in a generally vertical orientation and
to cause the egg to move to a generally horizontal
orientation;

an egg transfer device operably associated with
 10 the table, wherein the egg transfer device is configured
 to simultaneously lift a plurality of generally
 vertically oriented eggs from an egg flat and place the
 plurality of eggs within respective cradles, and wherein
 the egg transfer device is configured to simultaneously
 15 lift and remove the plurality of eggs from the plurality
 of cradles; and

a plurality of sample heads operably associated
 with the table, each of which is configured to extract
 material from a respective egg within a respective cradle
 and to deposit the extracted material within a respective
 20 sample receptacle in a sample template.

101. The system of Claim 100, further
 comprising a plurality of orientation members, wherein
 each orientation member is operably associated with a
 respective cradle, and wherein each orientation member is
 5 configured to urge an egg within a respective cradle from
 a generally horizontal orientation to a generally
 vertical orientation.

102. The system of Claim 100, further
 comprising a classifier that is configured to identify
 live eggs among a plurality of eggs.

103. The system of Claim 102, wherein the
 classifier comprises an egg candling device.

104. The system of Claim 100, further
 comprising a sanitizer that is configured to apply
 sanitizing fluid to each sample head after each sample
 head has deposited material extracted from an egg into a
 5 respective sample receptacle.

105. The system of Claim 100, further

comprising a processor that is configured to create and store an association between material deposited within a sample receptacle with an egg from which the material was extracted from.

106. The system of Claim 102, wherein the egg transfer device is operably associated with the classifier and is configured to simultaneously lift only eggs identified as live eggs from an egg flat.

107. The system of Claim 102, wherein the sample heads are operably associated with the classifier and are configured to only extract material from eggs identified as live eggs.

108. The system of Claim 100, wherein the egg transfer device comprises:

a frame;

an array of manifold blocks movably supported by the frame, wherein each manifold block comprises an end portion and an internal passageway that terminates at a nozzle extending from the end portion, and wherein the array is expandable and contractible such that eggs can be lifted from and placed within egg flats of different sizes and/or array configurations; and

a plurality of flexible cups, each secured to a respective manifold block nozzle and each in fluid communication with an internal passageway of a respective manifold block, wherein each flexible cup is configured to engage and retain an egg in seated relation therewith when vacuum is provided within the flexible cup via a respective internal passageway and wherein each flexible cup is configured to release a respective egg when vacuum within the respective internal passageway is destroyed.

109. The system of Claim 100, wherein each

sample head comprises:

an elongated housing having opposite first and second ends and an elongated passageway extending therebetween; and

an elongated needle disposed within the elongated passageway and movable between a retracted position and first and second extended positions, wherein the needle comprises a tip, wherein the tip of the needle is contained within the passageway when the needle is in the retracted position, wherein the tip of the needle extends from the housing first end a first distance when the needle is in the first extended position, wherein the tip of the needle extends from the housing first end a second distance greater than the first distance when the needle is in the second extended position, wherein the needle is configured to extract material from an egg when in the first extended position, and wherein the needle is configured to dispense material extracted from an egg into a sample receptacle when in the second extended position.

110. The system of Claim 100, further comprising an egg flat transport system positioned adjacent to the table that transports flats of eggs to the egg transfer device.

111. The system of Claim 100, further comprising an egg flat transport system positioned adjacent to the table that transports flats of eggs from the egg transfer device.

112. The system of Claim 100, further comprising a sample template transport system positioned adjacent to the table and operably associated with the plurality of sample heads that transports sample templates to and from the plurality of sample heads.

113. The system of Claim 100, further comprising an egg cradle transport system operably associated with the table that moves the array of cradles relative to the plurality of sample heads.

114. The system of Claim 109, further comprising a locking plate operably associated with the plurality of sample heads, wherein the locking plate is configured to releasably restrain each elongated housing from movement when the needle is extended from the housing first end to the first extended position.

115. The system of Claim 99, wherein the apparatus for assaying material extracted from the eggs comprises:

a reagent dispenser that is configured to dispense a reagent into each of the receptacles of a template, wherein the reagent is configured to chemically react with the egg material in each receptacle to produce an indication of a characteristic of a respective egg; and

a detector that is configured to detect an indication of an egg characteristic in each of the receptacles.

116. The system of Claim 115, wherein the detector comprises a CCD camera.

117. The system of Claim 115, further comprising a sterilizer that is configured to destroy the reagent.

118. The system of Claim 117, wherein the sterilizer comprises a sterilizing agent dispenser that is configured to dispense a sterilizing agent into each of the receptacles to destroy the reagent.

119. The system of Claim 117, wherein the sterilizer comprises a heat generating source.

120. The system of Claim 117, wherein the sterilizer comprises a radiation generating source.

121. The system of Claim 115, wherein the reagent dispenser comprises a biosensor dispenser.

122. The system of Claim 99, wherein the apparatus for selectively processing eggs, comprises:
a conveyor configured to convey egg carriers;
a plurality of injection delivery devices
operably associated with the conveyor, wherein the
injection delivery devices are configured to inject a
substance into eggs identified among a plurality of eggs
in an egg carrier conveyed by the conveyor as having a
characteristic; and

an egg removal device operably associated with
the conveyor, wherein the egg removal device is
configured to remove eggs identified as having a
characteristic from an egg carrier conveyed by the
conveyor.

123. The system of Claim 122, wherein the egg removal device comprises:

an array of manifold blocks, wherein each
manifold block comprises an end portion and an internal
passageway that terminates at a nozzle extending from the
end portion; and

a plurality of flexible cups, each secured to a
respective manifold block nozzle and each in fluid
communication with an internal passageway of a respective
manifold block, wherein each flexible cup is configured
to engage and retain an egg in seated relation therewith
when vacuum is provided within the flexible cup via a

15 respective internal passageway and wherein each flexible cup is configured to release a respective egg when vacuum within the respective internal passageway is destroyed.

124. The system of Claim 122, wherein the characteristic is gender, and wherein each injection delivery device is configured to inject a substance into eggs identified as having the same gender.

125. The system of Claim 122, wherein the characteristic is gender, and wherein the egg removal device is configured to remove eggs from an egg carrier identified as having the same gender.

126. The system of Claim 99, wherein the apparatus for selectively processing eggs, comprises:
 a conveyor configured to convey egg carriers;
 a first set of injection delivery devices
 5 operably associated with the conveyor, wherein the injection delivery devices in the first set are configured to inject a substance into eggs identified as having a first gender in an egg carrier conveyed by the conveyor;

10 a second set of injection delivery devices operably associated with the conveyor and adjacent the first set of injection delivery devices, wherein the injection delivery devices in the second set are configured to inject a substance into eggs identified as
 15 having a second gender in the egg carrier; and

 an egg removal device operably associated with the conveyor, wherein the egg removal device is configured to remove eggs identified as having a first gender from the egg carrier into a first receptacle, and
 20 to remove eggs identified as having a second gender from the egg carrier into a second receptacle.

127. The system of Claim 126, wherein the egg removal device comprises:

an array of manifold blocks, wherein each manifold block comprises an end portion and an internal passageway that terminates at a nozzle extending from the end portion; and

a plurality of flexible cups, each secured to a respective manifold block nozzle and each in fluid communication with an internal passageway of a respective manifold block, wherein each flexible cup is configured to engage and retain an egg in seated relation therewith when vacuum is provided within the flexible cup via a respective internal passageway and wherein each flexible cup is configured to release a respective egg when vacuum within the respective internal passageway is destroyed.

128. The system of Claim 99, wherein the apparatus for selectively processing eggs, comprises:

a conveyor configured to convey egg carriers containing a plurality of eggs;

an egg removal device operably associated with the conveyor that segregates male eggs from female eggs;

a first set of injection delivery devices that are configured to inject a substance into male eggs; and

a second set of injection delivery devices that are configured to inject a substance into female eggs.

129. The system of Claim 128, wherein the egg removal device comprises:

an array of manifold blocks, wherein each manifold block comprises an end portion and an internal passageway that terminates at a nozzle extending from the end portion; and

a plurality of flexible cups, each secured to a respective manifold block nozzle and each in fluid communication with an internal passageway of a respective

10 manifold block, wherein each flexible cup is configured
to engage and retain an egg in seated relation therewith
when vacuum is provided within the flexible cup via a
respective internal passageway and wherein each flexible
cup is configured to release a respective egg when vacuum
15 within the respective internal passageway is destroyed.

130. An egg processing system, comprising:
an apparatus for extracting allantoic fluid
from a plurality of eggs;
an apparatus for assaying allantoic fluid
5 extracted from the eggs to identify gender of the eggs;
and
an apparatus for selectively processing the
eggs based on identified gender.

131. The system of Claim 130, wherein the
apparatus for extracting allantoic fluid from a plurality
of eggs comprises:

a table comprising a plurality of cradles
5 arranged in an array, wherein each cradle is configured
to receive an egg in a generally vertical orientation and
to cause the egg to move to a generally horizontal
orientation;

an egg transfer device operably associated with
10 the table, wherein the egg transfer device is configured
to simultaneously lift a plurality of generally
vertically oriented eggs from an egg flat and place the
plurality of eggs within respective cradles, and wherein
the egg transfer device is configured to simultaneously
15 lift and remove the plurality of eggs from the plurality
of cradles; and

a plurality of sample heads operably associated
with the table, each of which is configured to extract
allantoic fluid from a respective egg within a respective
20 cradle and to deposit the extracted allantoic fluid

within a respective sample receptacle in a sample template.

5 132. The system of Claim 131, further comprising a plurality of orientation members, wherein each orientation member is operably associated with a respective cradle, and wherein each orientation member is configured to urge an egg within a respective cradle from a generally horizontal orientation to a generally vertical orientation.

133. The system of Claim 131, further comprising a classifier that is configured to identify live eggs among a plurality of eggs.

134. The system of Claim 133, wherein the classifier comprises an egg candling device.

5 135. The system of Claim 131, further comprising a sanitizer that is configured to apply sanitizing fluid to each sample head after each sample head has deposited allantoic fluid extracted from an egg into a respective sample receptacle.

5 136. The system of Claim 131, further comprising a processor that is configured to create and store an association between allantoic fluid deposited within a sample receptacle with an egg from which the allantoic fluid was extracted from.

137. The system of Claim 133, wherein the egg transfer device is operably associated with the classifier and is configured to simultaneously lift only eggs identified as live eggs from an egg flat.

138. The system of Claim 133, wherein the

sample heads are operably associated with the classifier and are configured to only extract allantoic fluid from eggs identified as live eggs.

139. The system of Claim 131, wherein the egg transfer device comprises:

a frame;

an array of manifold blocks movably supported
5 by the frame, wherein each manifold block comprises an
end portion and an internal passageway that terminates at
a nozzle extending from the end portion, and wherein the
array is expandable and contractible such that eggs can
be lifted from and placed within egg flats of different
10 sizes and/or array configurations; and

a plurality of flexible cups, each secured to a
respective manifold block nozzle and each in fluid
communication with an internal passageway of a respective
manifold block, wherein each flexible cup is configured
15 to engage and retain an egg in seated relation therewith
when vacuum is provided within the flexible cup via a
respective internal passageway and wherein each flexible
cup is configured to release a respective egg when vacuum
within the respective internal passageway is destroyed.

140. The system of Claim 131, wherein each sample head comprises:

an elongated housing having opposite first and
second ends and an elongated passageway extending
5 therebetween; and

an elongated needle disposed within the
elongated passageway and movable between a retracted
position and first and second extended positions, wherein
the needle comprises a tip, wherein the tip of the needle
10 is contained within the passageway when the needle is in
the retracted position, wherein the tip of the needle
extends from the housing first end a first distance when

the needle is in the first extended position, wherein the tip of the needle extends from the housing first end a second distance greater than the first distance when the needle is in the second extended position, wherein the needle is configured to extract allantoic fluid from an egg when in the first extended position, and wherein the needle is configured to dispense allantoic fluid extracted from an egg into a sample receptacle when in the second extended position.

141. The system of Claim 131, further comprising an egg flat transport system positioned adjacent to the table that transports flats of eggs to the egg transfer device.

142. The system of Claim 131, further comprising an egg flat transport system positioned adjacent to the table that transports flats of eggs from the egg transfer device.

143. The system of Claim 131, further comprising a sample template transport system positioned adjacent to the table and operably associated with the plurality of sample heads that transports sample templates to and from the plurality of sample heads.

144. The system of Claim 131, further comprising an egg cradle transport system operably associated with the table that moves the array of cradles relative to the plurality of sample heads.

145. The system of Claim 140, further comprising a locking plate operably associated with the plurality of sample heads, wherein the locking plate is configured to releasably restrain each elongated housing from movement when the needle is extended from the

housing first end to the first extended position.

146. The system of Claim 130, wherein the apparatus for assaying allantoic fluid extracted from a plurality of eggs comprises:

5 an environmentally-controlled chamber that maintains temperature and/or humidity within one or more respective predetermined ranges;

a conveyor system that is configured to convey a plurality of sample receptacle templates through the chamber;

10 a biosensor dispenser disposed within the chamber and operably associated with the conveyor system, wherein the biosensor dispenser is configured to dispense a biosensor into each of the receptacles of a template conveyed via the conveyor system;

15 a color substrate dispenser disposed within the chamber and operably associated with the conveyor system, wherein the color substrate dispenser is configured to dispense a color substrate into each of the receptacles of a template conveyed via the conveyor system, wherein
20 the biosensor and color substrate are configured to chemically react with allantoic fluid in each respective receptacle so as to produce an indication of gender of a respective egg; and

25 a detector operably associated with the conveyor system that is configured to scan each sample receptacle in a template conveyed via the conveyor system and to detect an indication of gender.

147. The system of Claim 146, wherein the detector comprises a CCD camera that is configured to detect a change in color of material in each sample receptacle of a template.

148. The system of Claim 146, further

comprising a sterilizer that is configured to destroy the biosensor.

149. The system of Claim 148, wherein the sterilizer comprises a sterilizing agent dispenser that is configured to dispense a sterilizing agent into each of the receptacles to destroy the biosensor.

150. The system of Claim 148, wherein the sterilizer comprises a heat generating source.

151. The system of Claim 148, wherein the sterilizer comprises a radiation generating source.

152. The system of Claim 146, wherein the biosensor dispenser comprises a yeast dispenser.

153. The system of Claim 130, wherein the apparatus for assaying allantoic fluid extracted from a plurality of eggs comprises:

an environmentally-controlled chamber that
5 maintains temperature and/or humidity within one or more respective predetermined ranges;

a conveyor system that is configured to convey
a plurality of sample receptacle templates through the
chamber;

10 a yeast dispenser disposed within the chamber and operably associated with the conveyor system, wherein the yeast dispenser is configured to dispense a yeast into each of the receptacles of a template conveyed via the conveyor system;

15 a color substrate dispenser disposed within the chamber and operably associated with the conveyor system, wherein the color substrate dispenser is configured to dispense a color substrate into each of the receptacles of a template conveyed via the conveyor system, wherein

20 the yeast and color substrate are configured to
chemically react with egg material in each respective
receptacle so as to produce a color that indicates gender
of a respective egg; and

25 a CCD camera operably associated with the
conveyor system that is configured to scan each sample
receptacle in a template conveyed via the conveyor system
and to detect a color.

154. The system of Claim 153, further
comprising a sterilizer that is configured to destroy the
yeast.

155. The system of Claim 154, wherein the
sterilizer comprises a sterilizing agent dispenser that
is configured to dispense a sterilizing agent into each
of the receptacles to destroy the yeast.

156. The system of Claim 130, wherein the
apparatus for selectively processing eggs, comprises:
a conveyor configured to convey egg carriers;
a plurality of injection delivery devices
5 operably associated with the conveyor, wherein the
injection delivery devices are configured to inject a
substance into eggs identified among a plurality of eggs
in an egg carrier conveyed by the conveyor as having a
characteristic; and

10 an egg removal device operably associated with
the conveyor, wherein the egg removal device is
configured to remove eggs identified as having a
characteristic from an egg carrier conveyed by the
conveyor.

157. The system of Claim 130, wherein the
apparatus for selectively processing eggs, comprises:
a conveyor configured to convey egg carriers;

a first set of injection delivery devices operably associated with the conveyor, wherein the injection delivery devices in the first set are configured to inject a substance into eggs identified as having a first gender in an egg carrier conveyed by the conveyor;

a second set of injection delivery devices operably associated with the conveyor and adjacent the first set of injection delivery devices, wherein the injection delivery devices in the second set are configured to inject a substance into eggs identified as having a second gender in the egg carrier; and

an egg removal device operably associated with the conveyor, wherein the egg removal device is configured to remove eggs identified as having a first gender from the egg carrier into a first receptacle, and to remove eggs identified as having a second gender from the egg carrier into a second receptacle.

158. The system of Claim 130, wherein the apparatus for selectively processing eggs, comprises:

a conveyor configured to convey egg carriers containing a plurality of eggs;

an egg removal device operably associated with the conveyor that segregates male eggs from female eggs;

a first set of injection delivery devices that are configured to inject a substance into male eggs; and

a second set of injection delivery devices that are configured to inject a substance into female eggs.

159. An egg processing system, comprising:

an apparatus for extracting allantoic fluid from a plurality of eggs, comprising:

a table comprising a plurality of cradles arranged in an array, wherein each cradle is configured to receive an egg in a generally

vertical orientation and to cause the egg to move to a generally horizontal orientation;

an egg transfer device operably associated with the table, wherein the egg transfer device is configured to simultaneously lift a plurality of generally vertically oriented eggs from an egg flat and place the plurality of eggs within respective cradles, and wherein the egg transfer device is configured to simultaneously lift and remove the plurality of eggs from the plurality of cradles; and

a plurality of sample heads operably associated with the table, each of which is configured to extract allantoic fluid from a respective egg within a respective cradle and to deposit the extracted allantoic fluid within a respective sample receptacle in a sample template;

an apparatus for assaying allantoic fluid extracted from the eggs to identify gender of the eggs, comprising:

a chamber;

a conveyor system that is configured to convey a plurality of sample receptacle templates through the chamber;

a biosensor dispenser disposed within the chamber and operably associated with the conveyor system, wherein the biosensor dispenser is configured to dispense a biosensor into each of the receptacles of a template conveyed via the conveyor system;

a color substrate dispenser disposed within the chamber and operably associated with the conveyor system, wherein the color substrate dispenser is configured to dispense a color substrate into each of the receptacles of

45 a template conveyed via the conveyor system,
wherein the biosensor and color substrate are
configured to chemically react with allantoic
fluid in each respective receptacle so as to
produce an indication of gender of a respective
egg; and

50 a detector operably associated with the
conveyor system that is configured to scan each
sample receptacle in a template conveyed via
the conveyor system and to detect an indication
of gender; and

55 an apparatus for selectively processing the
eggs based on identified gender.

160. The system of Claim 159, further
comprising a plurality of orientation members, wherein
each orientation member is operably associated with a
respective cradle, and wherein each orientation member is
5 configured to urge an egg within a respective cradle from
a generally horizontal orientation to a generally
vertical orientation.

161. The system of Claim 159, further
comprising a classifier that is configured to identify
live eggs among a plurality of eggs.

162. The system of Claim 161, wherein the
classifier comprises an egg candling device.

163. The system of Claim 159, further
comprising a sanitizer that is configured to apply
sanitizing fluid to each sample head after each sample
head has deposited allantoic fluid extracted from an egg
5 into a respective sample receptacle.

164. The system of Claim 159, further

comprising a processor that is configured to create and store an association between allantoic fluid deposited within a sample receptacle with an egg from which the allantoic fluid was extracted from.

165. The system of Claim 161, wherein the egg transfer device is operably associated with the classifier and is configured to simultaneously lift only eggs identified as live eggs from an egg flat.

166. The system of Claim 161, wherein the sample heads are operably associated with the classifier and are configured to only extract allantoic fluid from eggs identified as live eggs.

167. The system of Claim 159, wherein the egg transfer device comprises:

a frame;

an array of manifold blocks movably supported by the frame, wherein each manifold block comprises an end portion and an internal passageway that terminates at a nozzle extending from the end portion, and wherein the array is expandable and contractible such that eggs can be lifted from and placed within egg flats of different sizes and/or array configurations; and

a plurality of flexible cups, each secured to a respective manifold block nozzle and each in fluid communication with an internal passageway of a respective manifold block, wherein each flexible cup is configured to engage and retain an egg in seated relation therewith when vacuum is provided within the flexible cup via a respective internal passageway and wherein each flexible cup is configured to release a respective egg when vacuum within the respective internal passageway is destroyed.

168. The system of Claim 159, wherein each

sample head comprises:

an elongated housing having opposite first and second ends and an elongated passageway extending therebetween; and

an elongated needle disposed within the elongated passageway and movable between a retracted position and first and second extended positions, wherein the needle comprises a tip, wherein the tip of the needle is contained within the passageway when the needle is in the retracted position, wherein the tip of the needle extends from the housing first end a first distance when the needle is in the first extended position, wherein the tip of the needle extends from the housing first end a second distance greater than the first distance when the needle is in the second extended position, wherein the needle is configured to extract allantoic fluid from an egg when in the first extended position, and wherein the needle is configured to dispense allantoic fluid extracted from an egg into a sample receptacle when in the second extended position.

169. The system of Claim 159, further comprising an egg flat transport system positioned adjacent to the table that transports flats of eggs to the egg transfer device.

170. The system of Claim 159, further comprising an egg flat transport system positioned adjacent to the table that transports flats of eggs from the egg transfer device.

171. The system of Claim 159, further comprising a sample template transport system positioned adjacent to the table and operably associated with the plurality of sample heads that transports sample templates to and from the plurality of sample heads.

172. The system of Claim 159, further comprising an egg cradle transport system operably associated with the table that moves the array of cradles relative to the plurality of sample heads.

5 173. The system of Claim 159, further comprising a locking plate operably associated with the plurality of sample heads, wherein the locking plate is configured to releasably restrain each elongated housing from movement when the needle is extended from the housing first end to the first extended position.

174. The system of Claim 159, wherein the detector comprises a CCD camera that is configured to detect a change in color of material in each sample receptacle of a template.

175. The system of Claim 159, further comprising a sterilizer that is configured to destroy the biosensor.

176. The system of Claim 159, wherein the biosensor dispenser comprises a yeast dispenser.

177. The system of Claim 159, wherein the chamber comprises an environmentally-controlled chamber wherein temperature and/or humidity are maintained within one or more respective predetermined ranges.

5 178. The system of Claim 159, wherein the apparatus for selectively processing eggs, comprises:
a conveyor configured to convey egg carriers;
a plurality of injection delivery devices operably associated with the conveyor, wherein the injection delivery devices are configured to inject a substance into eggs identified among a plurality of eggs

in an egg carrier conveyed by the conveyor as having a characteristic; and

10 an egg removal device operably associated with the conveyor, wherein the egg removal device is configured to remove eggs identified as having a characteristic from an egg carrier conveyed by the conveyor.

179. The system of Claim 159, wherein the apparatus for selectively processing eggs, comprises:

a conveyor configured to convey egg carriers;

5 a first set of injection delivery devices operably associated with the conveyor, wherein the injection delivery devices in the first set are configured to inject a substance into eggs identified as having a first gender in an egg carrier conveyed by the conveyor;

10 a second set of injection delivery devices operably associated with the conveyor and adjacent the first set of injection delivery devices, wherein the injection delivery devices in the second set are configured to inject a substance into eggs identified as having a second gender in the egg carrier; and

15 an egg removal device operably associated with the conveyor, wherein the egg removal device is configured to remove eggs identified as having a first gender from the egg carrier into a first receptacle, and to remove eggs identified as having a second gender from the egg carrier into a second receptacle.

180. The system of Claim 159, wherein the apparatus for selectively processing eggs, comprises:

a conveyor configured to convey egg carriers containing a plurality of eggs;

5 an egg removal device operably associated with the conveyor that segregates male eggs from female eggs;

a first set of injection delivery devices that
are configured to inject a substance into male eggs; and

10 a second set of injection delivery devices that
are configured to inject a substance into female eggs.